Edible protein gels prepn. - by heating meat homogenate in alkaline salt, skimmed milk, buttermilk, or whey solutions

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Patent Family

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Patent Details

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SU 875660	A		4		

Abstract:
SU 875660 A

Edible protein gels are made from homogenised stock; the proteins are extracted in alk soln., deposited from the suspension, concentrated frozen and thawed. Both the quality and yield of the target product are improved as follows: the proteins are extracted in 2.10 power minus 4 -1.10 power minus 1/M aq. salt soln., skimmed milk, buttermilk or whey at pH 8.5-11. Before the proteins are precipitated, the suspension is heated at 35-75 deg. C for 10-60 min.

(4pp Dwg. No. 0/0)

with rotating profiled strips and holding devices, a second plate conveyor with rotating strips for carrying along the heads, disc knife to cut off the heads, hydraulic head with attachment and rotating vertical discs (which rotated relative to one another), plus grooves to distribute water as the internal organs were removed. There was also a means for cutting off the tails including two brushes on a bracket which rotated relative to a vertical shaft.

To reduce the size of the machine, the plates of the main conveyor are shaped as a parallelogram with acute angles of 50-60 deg., and the removable strips made hollow with telescopic profiled ribs inside them. The hydraulic head is spring-loaded, can rock about, and there is a measuring pressure strip spring-loaded by a spring with a regulating screw. (9pp Dwg. No. 0/12)
C84-034356

Details

The fish are loaded onto the conveyor by hand 'on their sides', abdomens facing all one way. The heads are oriented along the line of cut or along a support strip so that they are arranged on the strips of the other conveyor. The conveyors are adjusted to the size of the fish. The conveyors move the fish towards the disc knife which removes their heads, which are taken from the machine separately. The decapitated bodies are moved to the hydraulic head which removes the internal organs. The jet of water is directed into the abdominal cavity. Then the tail fins are removed by another mechanism to which the fish are fed. The conveyors move at a similar speed to brushes which do the final cleaning of the flesh, being held steady during this operation also. Bul. 35/23.9.83.

PROI ★ D16 84-079885/13 ★SU -839-258-A
Prodn. of lipid(s) by yeast fermentation - uses control of carbon to aeration oxygen ratio in medium to control lipid prod. compsn.
PROTEINS BIOSYNTHESIS(PETR-) 22.03.79-SU-739138
E19 (D23) (07.08.83) C12p-07/64
22.03.79 as 739138 (1550MW)
Lipids are obtd. by culturing yeast in a nutrient medium contg. N and P sources mineral salts, and hydrocarbons contg. n-alkanes as C source. The medium is aerated at controlled rates which maintain the ratio of n-alkane C to O2 in the medium at 1:10-60 to yield a prod. rich in phospholipids and fatty acids; or at 1:0.5-12.5 to yield a prod. rich in glycerides and sterols.

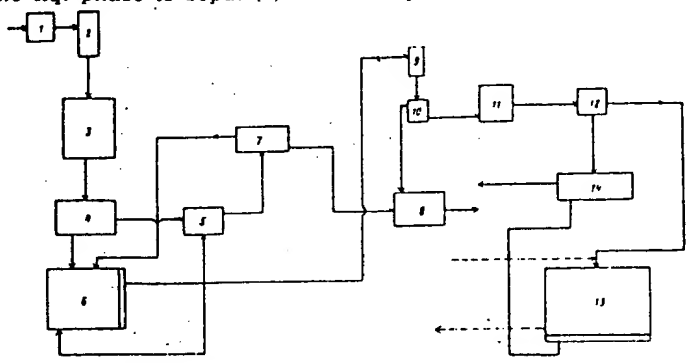
A petroleum distillate is pref. used as an n-alkane source. Cultivation is pref. carried out at 30-39 deg. C, pH 3.8-5.0 and dilution coefft. 0.35-0.07 per hr. The lipids are extracted from the prod. with organic solvents. (3pp Dwg. No. 0/0)
C84-034359

Example

Candida guilliermondii is cultured in a medium contg. (in mg./l): 70% H3PO4 930, KCl 990, MgSO4 330, FeCl2 9, ZnSO4 31, MnSO4 25.5 and CuSO4 7.2. 6% NH4OH is used as N source and 10% petroleum fraction (240-360 deg. C; n-alkanes content 20%) is used as C source. Coefft. of dilution is 0.25 per hr. and aeration rate is 200l/kg. per hr.

Under these conditions the ratio of n-alkane C to O2 is 1:14. Cultivation is carried out at pH 4-4.5 and temp. 30-32 deg. C. The lipids content of the resulting biomass is 12.7% and the compsn. is (in %): phospholipids 28.9, glycerides 36.0, free fatty acids 28.5, sterols 2.6 and sterol ester waxes 4.0. Bul. 29/7.8.83.

FERM = ★ D16 84-079886/13 ★SU -841-350-A
Fermentation waste utilisation - by sepn. of liq. phase from yeast-bacterial prod. returned for purifictn. by active slurry
FERMENTING PRODS RE 24.06.80-SU-933701
C04 (15.08.83) C12f-03/10
24.06.80 as 933701 (840GW)
The process includes biomass sepn. from a cultural liq. in separator (4) to obtain a yeast-bacterial prod. in collector (5). Increased protein yield and waste-free prodn. for prevention of environmental pollution when using molasses, potato-grain and yeast residues are achieved for organo-mineral fertiliser prodn. The liq. phase is sepd. (7) from the yeast-bacterial prod. and returned for biological purification by active sludge, separating off the drainage waste and drying the yeast-bacterial prod.



The drainage waste is subjected to magnetic processing (9) and to sepn. of the solid and liq. fractions in a settling tank (10). The solid phase is fed to a granulator-dryer (10) and the liq. phase via a heat-exchanger in appts. (11) to another settling tank (12).

The liq. fraction is concentrated and cooled in tower (13), and the residue is fed to another granulator-dryer (14) to obtain fertiliser. Between stages, the waste is heated to 98-100 deg. C for 60-80 min. After the second stage, the liq. fraction is cooled to 10-20 deg. C and simultaneously concentrated for use as cooling agent in yeast cultivation and purifictn. by active sludge. Bul. 30/15.8.83. (4pp Dwg. No. 1/1)
C84-034360

DZHA = ★ D16 84-079897/13 ★SU -856-214-A
Prepn. of liq. yeast using nutrient medium of saccharified wheat flour liquor mixed with wheat flour liquor fermented with Lactobacterium fermenti-27
DZHAMBULSKII TECHN 04.12.79-SU-846865
(D11) (07.10.83) C12n-01/16
04.12.79 as 846865 (1550MW)
Liq. yeast used in breadmaking is obtd. by: mixing flour and water; digesting the mixt.; fermenting it using bacterial strain Lacto-bacterium fermenti-27 at 35-37 deg. C to an acidity of 20-22 deg. H over 18-20hrs; dosing the fermented mixt. with a saccharified flour/water digestion liq. and water in a ratio 1:1:0.6; and using the resulting mixt. as a nutrient medium for growing a liq. yeast. High quality yeast is obtd. and the culturing period is extended without the need to renew the culturing cycle. (4pp Dwg. No. 0/0)
C84-034363

Example

70kg. wheat flour and 140l. water are mixed and digested at 36 deg. C. The mixt. is then dosed with 30% of a Lacto-bacterium fermenti-27 ferment and left at 36 deg. C for 20 hrs. until the acidity is 20 deg. H.

A saccharified digestion liquor is then obtd. by heating a mixt. of 70kg. of wheat flour and 210l. of water at 90 deg. C, stirring to form a uniform mass, cooling to 50 deg. C, dosing with 0.01% (on flour wt.) of an amylorisin prepn. and saccharifying for 1-1.5hrs. The initial ferment, saccharified ferment and water are then mixed in a 1:1:0.6 ratio and the mixt. is used to grow a liq. yeast prod. The mixt. is suitable for a 6-month growth cycle. Bul. 37/7.10.83.

ZELI ★ D21 84-079903/13 ★SU -869-250-A
Cyclohexyl-cyclohexanone prepn. - uses catalyst contg. sodium, calcium, rare earth metals and palladium or rhodium or nickel oxide(s)
ZELINSKII ORG CHEM INST 03.09.79-SU-814670
E15 (D25) (15.08.83) C07c-49/48
03.09.79 as 814670 (124MW)
Use of a catalyst mixt. contg. (in wt.%): Na2O 0.15-0.2, CaO 1.2-2.5, rare earth metal oxides (I) 8.7-13.1, Pd or Rh or Ni 2.8-7.1 and Y-type zeolite (II) the rest in the synthesis of cyclohexyl cyclohexan-2-one (III) by hydrocondensation of phenol or its esters at 120-200 deg. and 10-20 atmos., simplifies the process and increases yield. The cpd. (III) finds use in perfumery and the mfr. of detergents.

A typical catalyst contains (in wt.%): Na2O 0.2, CaO 2.5, (I) 8.7, PdO 2.8 and (II) the rest. Tests show that use of the proposed catalyst mixt. increases the yield of (III) from 15% to 59-90%. Bul. 30/15.8.83. (4pp Dwg. No. 0/0)
C84-034366

HETO ★ D12 84-079906/13 ★SU -875-660-A
Edible protein gels prepn. - by heating meat homogenate in alkaline salt, skimmed milk, buttermilk, or whey solutions
HETEROORG CPDS AS USSR 20.11.80-SU-003261 (20.11.80-SU-003258)
(07.08.83) A23j-03
20.11.80 as 003258 (835MW)
Edible protein gels are made from homogenised stock; the proteins are extracted in alk soln., deposited from the suspension, concentrated frozen and thawed. Both the quality and yield of the target product are improved as follows: the proteins are extracted in 2.10 power minus 4 -1.10 power minus 1/M aq. salt soln., skimmed milk, buttermilk or whey at pH 8.5-11. Before the proteins are precipitated, the suspension is heated at 35-75 deg. C for 10-60 min. (4pp Dwg. No. 0/0)
C84-034367

Example

1 kg. meat portions are minced and homogenised in 260ml. water for 0.5hr. at 400 rev/min. Proteins are extracted with 20l 0.5 M KCl soln. with added 0.1N NaOH to 8.5, for 2hrs. at 30 deg. C. The suspension is heated at 35 deg. C for 60 min. and then acidified with 0.1N acetic acid to pH 4.6. The separated proteins are isolated by centrifuge at 3000 rev/min. for 10 min. and frozen

at minus 10 deg. C for 12hrs. The product obtained is thawed and dried. The process raises yields by 30% up to 70-85%. The porous products obtained after drying produce fine quality firm gels with water. Bul. 29/7.8.83.

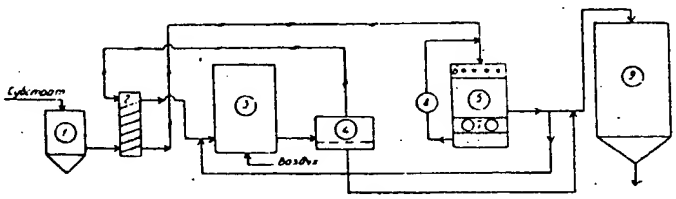
PROI ★ D16 84-079913/13 ★SU -888-525-A
Petroleum deparaffinated fractions purifcn. - by recovering from culture medium, washing and subjecting to AC electric field
PROTEINS BIOSYNTHESIS(PETR =) 08.07.80-SU-954593
H04 (07.08.83) C10g-33/02
08.07.80 as 954593 (1550MW)
Petroleum de-paraffinisates, obtd. by culturing microorganisms are purified by: recovering the de-paraffinisate from the culture medium; washing with water or aq. alkali; subjecting to an ac field of 0.30-5.0 kV/cm. at 20-98 deg. C for 15-60 mins. and separating the liberated impurities. The electric field treatment enhances the prod. quality. (4pp Dwg. No. 0/0)
C84-034373

Example
Candida guilliermondii yeast is cultured on a nutrient medium contg. 20% of a petroleum distillate (240-360 deg. C; pour pt. 4 deg. C) as C source. The de-paraffinised prod. is sepd. and washed with water. The prod. has a pour pt. of -25 deg. C, contains 195 mg./100 mls. of non-volatiles and has an acidity of 10.2mg. KOH/100 mls.
It is then subjected to an electric field of 1.3 kV/cm. at 60 deg. C for 45 mins. and then filtered. The prod. has a poure pt. of -25 to -27 deg. C, contains 118 mg./100 mls. of non-volatiles and has an acidity of 10.2 mg. KOH/100 mls. Bul. 29/7.8.83.

FERM = ★ D16 84-079914/13 ★SU -888-542-A
Lipoxygenase enzyme fermenting compsn. prodn. - by culturing aspergillus producer in nutrient contg. soya flour, soya oil and mineral salts
FERMENTING PRODS(BIOC = FOOD =) 30.05.80-SU-949321
(15.08.83) C12n-09/02
30.05.80 as 949321 (1550MW)
Lipoxygenase enzyme prepn. used in bread making is obtd. by culturing an Aspergillus gp. producer in a nutrient medium contg. soya flour as C source, mineral salt sources of N, P, K and Mg, and 2-5 mls./100 mls. of soyabean oil as lipoxygenase inducer. The activity of the lipoxygenase prod. is enhanced.
A pref. medium consists of (in wt.%): soya oil 1-5, soya flour 8-12, NaNO3 0.05-0.3, MgSO4 0.005-0.015, KH2PO4 0.05-0.3 and water, the balance. Pref. Aspergillus producers are Aspergillus oryzae 3-9-15 and Aspergillus awarory-466. (4pp Dwg. No. 0/0)
C84-034374

Example
A medium is prepd. of (in g./100 ml. water): soya flour 10 NaNO3 0.1, MgSO4.7H2O 0.01, KH2PO4 0.1 and soya oil 2.3 mls. The medium is inoculated with 3-5% of a seed culture of Aspergillus oryzae 3-9-15 and cultivation is carried out at 28-30 deg. C for 48hrs. The enzyme activity of the resulting culture liq. is 20000 units/ml. Bul. 30/15.8.83.

FERM = ★ D16 84-079922/13 ★SU -895-090-A
Fodder yeast propagator - has two culture units with initial nutrient in one and culture fluid in second
FERMENTING PRODS 25.08.80-SU-980974
C03 (D13) (15.08.83) C12n-01/16
25.08.80 as 980974 (89MW)
Reduced heating and power usage in the fermenter for growing fodder yeast with two-stage aeration ensures the culture on nutrient in the first stage. The nutrient includes a source of carbon and mineral salts, and this is followed by yeast sepn. for the second stage using culture fluid with subsequent yeast sepn. and drying.
The initial nutrient is taken from tank (1) to the culture set (3) via the heat exchanger (2), and the filtrate is obtained with the separating mesh (4). The filtrate is diverted to the heat exchanger (2) where it cools the initial nutrient and then is transferred to the secondary culture unit (5) using the sprayer (6) with the circulation controlled by the pump (8). The concentrated suspension is split into one stream fed to the culture unit (3) and the other stream mixed with the filtration mass for loading into the dryer (9). Bul. 30/15.8.83. (3pp Dwg. No. 1/1)
C84-034378



FERM = ★ D16 84-079933/13 ★SU -913-731-A
Mineral fertiliser protein prodn. - by mixing yeast prod. with active sludge biomass directly in cultivation stage and subsequent multistage concn.
FERMENTING PRODS RE(FOOD =) 02.10.80-SU-991912
C03 (15.08.83) C12n-01/16
02.10.80 as 991912 (840GW)
Protein product prodn. by yeast and active slurry biomass cultivation on malt-residue in the presence of necessary mineral salts in a fermenter to obtain mineral fertiliser after purification and conc. of the yeast-bacterial biomass in a tower is enabled to make more complete use of nutrient components for quicker cultivation and to save heat energy in the alcohol and yeast industry. The yeast prod. is mixed with the active slurry biomass directly in the cultivation stage in the fermenter.
In the mixing process, pure yeast culture is periodically seeded into the active slurry biomass when the concn. of the latter reaches 18-20 g/l. The resulting mix is cultivated to a biomass content 40-45 g/l. The concn. in the towers is a multi-stage process, being increased from 0.5-1.5% in the first stage to 15-25% in the last stage. In between stages, the yeast-bacterial biomass is heated to the first-stage arrival temp. (40-60 deg. C). One flow is recycled to the preceding stage and another to the following stage. Bul. 30/15.8.83. (4pp Dwg. No. 0/1)
C84-034384

HETO ★ D13 84-079948/13 ★SU -925-940-A
Edible protein gels prodn. - by removal of lipid-albumin(s) and globulin(s) with alkali and acid
HETEROORG CPDS AS USSR 12.12.80-SU-217497
(07.10.83) A23j-03
12.12.80 as 217497 (835MW)
Edible protein gels are made by homogenising vegetable matter in water, extracting the globulin fraction in an alk. medium, precipitating the proteins, concentrating the suspn. which is then frozen and thawed. The yield and storage life of the target product are raised as follows: when the stock is being homogenised, the albumin fraction is extracted in an isoelectric stream, after which the lipid-albumin fraction is separated and protein residues are isolated from it. The globulin fraction is extracted from the proteinaceous residues obtained. Extraction is conducted at 25-55 deg. C with rapid stirring for 5-15 min. The stock employed can be soya bean. (3pp Dwg. No. 0/0)
C84-034392

Example
1 kg. soya beans are mixed with 10l water at pH 4.5, extracted and homogenised for 5 min. Liquid and solid phases are sepd. The solid phase of proteinaceous residues is returned to the extractor and treated with 10l water at pH 9.0, 55 deg. C, for 5 min., in ord er to isolate the globulins. The suspension is separated and 0.1N acetic acid is added to the liquor until the latter reaches pH 4.5. The precipitated globulins are separated by centrifuge and frozen at minus 10 deg. C for 24 hrs. After thawing, 250g (61%) of dry protein are obtd. In all cases yields are raised from 30-50% to about 65%. Storage life is extended 2-3 fold and the gels are more stable to heat. Bul. 37/7.10.83.

PROI ★ D16 84-079962/13 ★SU -938-616-A
Storage of methane-acidic microorganisms - by suspending in soln. of ammonium sulphate to permit long storage
PROTEINS BIOSYNTHESIS(TECH-) 08.07.80-SU-952714
(07.10.83) C12n-01/04
08.07.80 as 952714 (1550MW)
Methane-acidic microorganism cultures are stored by suspending the cells in a soln. of (NH4)2SO4 of concn. 3-5 wt. % on suspn. wt.; and storing at 3-15 deg. C. The method is simple and permits long-term storage, e.g. 3 yrs.
Typical microorganisms which may be stored are Methylococeus capsulatus, Methylosinus sporium, Halobacterium gasotipicum, etc. (3pp Dwg. No. 0/0)
C84-034402

Example
1l. of a Methylococeus capsulatus culture is dosed with 30g. of (NH4)2SO4, stirred, plugged with cotton wool and stored at 8 deg. C for 3 yrs. Bul. 37/7.10.83.

BREW = ★ D16 84-079977/13 ★SU -948-132-A
Starch base prepn. for fermenting into alcohol - by liquefying and saccharifying with amylo mesentery and gluco-avamorin enzymes pre-activated by heat-treatment
BREWING PRODUCTS(MOFO) 05.02.81-SU-245531
(D17) (30.08.83) C12c-07/04
05.02.81 as 245531 (1550MW)
Starch base is prepd. for fermentation into alcohol by: milling; mixing with water and amylo-mesenterin 'Gkh' (I); liquefying by step-wise temp. increase with a short hold at each step; digesting; saccharifying with a mixt. of (I) and gluco-awamorin 'Gkh-466' (II); and cooling to fermentation temp. (I) and (II) are pre-